considerable attention, and did much to popularise the science in America. It is needless to say that he was a member of many learned societies, American and European; it will be sufficient to refer here to the fact that he was elected a foreign member of the Royal Society in 1895. At the age of seventy-two he is removed from that position he was so well fitted to adorn, and the respectful sympathy of the men of science of all nations will be offered to those who suffer by his loss. W. E. P.

NOTES.

ONE good purpose served by the movement referred to last week (p. 419) to commemorate the jubilee of the discovery of the first artificial coal-tar colour by Dr. Perkin is that public attention has been directed to the relations between scientific research and industrial progress. The complete lack of sympathy between the capitalist in this country and the scientific worker, largely due to the indifference shown by statesmen to scientific studies, has been persistently deplored in these columns for many years; and we are glad that the general public is now being enlightened as to the results of neglect of scientific research. The coal-tar industries, founded upon an essentially British discovery, have been lost to us, and are now represented in Germany by two industrial groups which, with a capital of 50,000,000*l*., can pay dividends of from 20 per cent. to 30 per cent. per annum. Prof. S. P. Thompson, in a letter to Saturday's *Times*, refers to this lost industry, and shows that the electrical industry and the manufacture of steel must pass to other countries unless our manufacturers realise the industrial value of higher technical education and scientific research. "Pioneering," he remarks, "as it is understood in an electrical factory in the United States or in Germany, is now almost non-existent in England; and the result on the electrical industry in the next ten years must be simply disastrous. Where are the newer kinds of electric lamps being developed? The Nernst lamp, the flame lamp, the vapour lamp, the oxide lamp, the osmium lamp, the tantalum lamp, all rich in future possibilities, where are they being perfected? Not in England. I doubt if there is a single British firm that is spending on such development a tenth part of the sum that one single American firm is spending on this one thing alone. If we cease to pioneer we become mere followers at a distance of those who are going forward—ourselves cease to lead in the development of the industry." To save our country from future disaster, our commercial and educational leaders, and our statesmen, must realise the vital nature of scientific research to national prosperity, and act upon this conviction by making adequate provision for it.

THE town council of Hamburg has voted the sum of 586,000 marks (29,300*l*.) for the construction of a new observatory at Bergedorf, about ten miles from Hamburg, and 309,000 marks (15,450*l*.) for the instrumental and electrical equipment of the observatory.

PROF. W. OSLER, F.R.S., has been elected a member of the Athenæum Club under the provisions of the rule which empowers the annual election by the committee of nine persons "of distinguished eminence in science, literature, the arts, or for public services."

THE American Geographical Society has awarded Captain R. F. Scott its gold medal in recognition of his services as commander of the British Antarctic Expedition. The Paris Geographical Society has awarded one of its gold medals to Major C. H. D. Ryder in recognition of his work as surveyor and explorer in connection with the recent Tibet mission, and his expedition to the sources of the Brahmaputra.

THE Berlin correspondent of the *Times* states that on Monday the German Emperor formally opened the new Museum for Marine Science, Berlin University. Among those present at the opening ceremony were the Prince of Monaco, the Rector of the University, Geheimrath Diel, and many distinguished representatives of natural science. The institute, which owes its existence to the direct initiative of the German Emperor, is intended to promote and encourage the interest of the German people in marine matters, and to place the subject upon a scientific basis.

THE Empress Frederick Institute for the higher scientific and practical education of medical men, which owes its inception to a project initiated by the late Empress Frederick, was opened in Berlin on March 1. The German Emperor and Empress, accompanied by many members of the Prussian Royal Family, were present. Sir Felix Semon attended the ceremony in accordance with the commands of King Edward, and in the course of a short address referred to the King's personal interest in the new institution.

A ROYAL COMMISSION has been appointed to inquire into the canals and inland navigations of the United Kingdom, and to report on their present condition, financial position, the facilities, improvements, and extensions required to complete a system of through communication by water, the expediency of canals being made or acquired by public bodies, and other matters related to these subjects.

SIR EDWARD FRY will preside at the twenty-third annual congress of the Royal Sanitary Institute, which will be held at Bristol from July 9 to 14. The presidents of the various sections will be:—Section i., sanitary science and preventive medicine, Sir William J. Collins, M.P.; section ii., engineering and architecture, Mr. Edwin T. Hall; section iii., physics, chemistry, and biology, Dr. W. N. Shaw, F.R.S.

AT the third International Seismological Conference, held at Berlin on August 15, 1905, Signor Luigi Palazzo was elected vice-president of the permanent board of the International Seismological Association. As Prof. A. Schuster was unable to accept the presidency offered him, the assembly deputed Signor Palazzo to act as president until the new elections take place next summer. Signor Palazzo desires it to be known that the Italian Government has consented to his acceptance of the office and responsibility, and he asks for the support of all who take an interest in the progress of seismology.

DR. C. W. ANDREWS, of the British Museum, left England last week to resume the quest for the remains of extinct vertebrates from the Tertiary deposits of the Fayûm and other parts of Egypt. Recent discoveries in Egypt have demonstrated the descent of the Eocene zeuglodonts from creodont Carnivora, and it is one of the objects of the present expedition to endeavour to discover, in higher beds, the missing links between zeuglodonts and true cetaceans. It may be added that the present expedition (like the earlier ones) of Dr. Andrews has been rendered practicable by the generosity of Mr. W. E. de Winton

Science reports that, according to a despatch to the daily papers from Washington, the Carnegie Institution has purchased a tract of six acres in the north-west section of Washington, near Rock Creek Park, where it will erect a permanent home. The site is near the building of the

United States Bureau of Standards, and is in a commanding position, overlooking the entire city. The purchase price was 700*l.* an acre, and a building to cost 20,000*l.* will be erected at once.

THE great horticultural exhibition, to be held in the gardens of the Royal Botanic Society on Wednesday, June 13, will be opened by Princess Alexander of Teck.

THE Badische Anilin- und Soda-Fabrik, of Ludwigshafen, proposes to lay down a hydraulic power plant for the preparation of nitric acid from atmospheric nitrogen by the Birkeland process. Instead, however, of preparing calcium and sodium nitrate for artificial manures, as in the Norwegian installations, it is intended, in the first place at least, to make potassium nitrate for explosive purposes.

ACCORDING to the *Chemiker Zeitung*, the proposed new offshoot of the General Electrical Company, Berlin (p. 421), for the manufacture of mercury lamps in Europe is to be known as the "Quarzlampengesellschaft." The great advantage of the lamps will be the possibility of preparing them for all voltages up to 500 volts, and, in addition to the fact that no carbons are required, the lamps should be usable for 1000 hours without attention; it is expected that the lamps will in many cases replace arc-lamps.

AT the meeting in the Aula of the Berlin University on February 21, which was held at the invitation of the preliminary committee appointed last year to investigate the question of the formation of a Chemische Reichsanstalt, there were present some 150 of the most eminent representatives of German academic and industrial chemists, as well as several representatives of the Prussian Board of Education. After a few remarks by the president, Prof. Emil Fischer, the report of the preliminary committee was presented by Prof. Nernst. The great majority of the scientific and industrial societies consulted were decidedly in favour of such an institution; sympathetic answers were also received from most of the different German States and from the Imperial Government offices. Prof. Ostwald, who referred to the experiences gained during his recent stay in America, spoke of the necessity of the proposed institute from a scientific point of view, while Prof. Duisberg spoke from the technical side. After further discussion, the meeting unanimously agreed to the plans submitted by the preliminary committee, and moved that the Imperial Treasurer be approached on the subject. It is proposed that the institution be placed either in Berlin or in one of the suburbs; further particulars and details of the proposed scheme will be given in a subsequent issue.

A REUTER message from Rome states that the convention for the establishment of an International Institute of Agriculture has been signed by Italy, Russia, Servia, Belgium, San Salvador, Portugal, Mexico, Luxemburg, Switzerland, Persia, Japan, Ecuador, Bulgaria, Spain, France, Denmark, Greece, Sweden, Holland, Uruguay, Germany, Nicaragua, Austria-Hungary, Great Britain, Egypt, the United States, and Cuba. Other Powers have notified their intention of signing the convention. The creation of the International Institute of Agriculture is therefore assured, and it will be able to begin its labours next year. King Victor Emmanuel has determined that the palace of the institute shall be completely finished by 1907. His Majesty has presented the funds necessary for this enterprise, and the work will be started very shortly.

THE twenty-eighth annual general meeting of the Institute of Chemistry of Great Britain and Ireland was held on March 1, Mr. David Howard, the retiring president, in the chair. In his address, Mr. Howard referred, among other matters, to the great advances in chemistry that had been due to the work of private practitioners, giving his opinion that any action which tends to interfere with the individual practitioners would be fatal to progress. With greater facilities for training, and, consequently, a larger supply of chemists, it was evident that only the most efficient could hope to be successful. In conclusion, Mr. Howard referred to the new president, Prof. Percy F. Frankland, F.R.S., who had long been associated with the institute, and whose father, Sir Edward Frankland, was the founder and first president of the institute.

THE annual meeting of the Liverpool School of Tropical Medicine, which was held last week in the Liverpool Town Hall, under the presidency of the Lord Mayor (Alderman J. Ball), was attended by a large number of prominent citizens, including Sir Alfred Jones (chairman of the school), Mr. William Adamson (vice-chairman of the school), Prof. Carter, Prof. Ronald Ross, C.B., Dr. Caton, Mr. Charles Booth, jun., and Mr. Philip Davey. Princess Christian wrote expressing her constant warm personal interest in the progress of the school, and sympathetic messages were received from other prominent persons. The report shows that excellent work is being done by the school. The committee acknowledges the continued generous support of the public, but further funds are needed in view of the great development of research work. A sympathetic reference was made to the regretted death of Dr. J. E. Dutton, who lost his life while engaged in the investigation of trypanosomiasis and tick fever on the Congo.

AN agricultural conference was held in Bombay on February 5 and following days. In opening the meetings, Mr. Muir MacKenzie, the president, said that important beginnings had been made in the department of agricultural research and education. It was the late Mr. Ozanne who gave the first effective impetus to the scientific development of agriculture in the west of India. He established the Kirkee demonstration farm and dairy. This dairy has developed into an industry which has spread all over India. Referring to the agricultural colleges, the president said that by a course of study at the colleges it was not expected to make a man into a scientific and practical farmer. The colleges give an agricultural bent to the student's mind, and enable him to think correctly about agriculture and to bring to bear upon agricultural problems in India the information thus acquired. Referring to the experiments with Egyptian cotton made in Sind, he said this year the crop was estimated at 1200 bales, and next year 4000 bales were expected. They were justified, he continued, in entertaining some confidence that the establishment of that valuable product in Sind would be an accomplished fact, and would prove a substantial addition to the agricultural resources of the country.

Naturen for February contains an article by Prof. G. Guldberg on the pigmies of the Congo forest.

WE have received a copy of a paper by Mr. C. O. Esterly on the nervous system of copepod crustaceans, issued in the Zoological Publications of the University of California.

AMONG the contents of the February *Zoologist* reference may be made to an article by Mr. G. Renshaw on the extinct Mauritius dove, or "pigeon hollandais" (*Alectoraenas nitidissima*). Discovered between 1774 and 1781, it was still common in 1790, but when it was exterminated

cannot be determined. There is a specimen in the Edinburgh Museum of Science and Art, and another at Port Louis.

To the January number of *Spolia Zeylanica* Dr. O. von Linstow contributes a paper on parasitic worms (Helminthes) in the Colombo Museum, while Mr. N. Annandale discusses certain lizards and stalked barnacles in the same collection. Among the lizards, a curiously striped skink, which had been described as *Euprepes hallianus*, is made the type of the new genus Theconyx. In reference to the recent discovery by Dr. Willey that the lemurs of the genus Loris are almost peculiar among Primates in having four mammæ, Mr. Annandale records that the same condition obtains in their allies of the genus Nycticebus.

ACCORDING to the annual report for 1905, the Royal Zoological Society of Ireland enjoyed an unusually good year, the gate-money having increased by one hundred pounds, while the entrance-fees and subscriptions reached a total which has only once been exceeded, and then only by a few shillings. The balance-sheet has also benefited to a considerable extent by the sale of superfluous animals. Very wisely, the council has spent a considerable portion of this increased income in improving the accommodation provided for the denizens of the gardens, the most important addition being an open-air aviary measuring 90 feet by 50 feet, with a height of 20 feet. Experiments have also been made, with most satisfactory results, in placing tropical animals in the open air, a number of parrots having been introduced into one of the smaller outdoor aviaries, while a party of Indian rhesus monkeys has likewise been kept for some months without any shelter. An excellent coloured plate, forming the frontispiece to the report, shows these monkeys in the snow, apparently in a high state of health and contentment.

IMPORTANT information with regard to the origin, rise, and decline of British whaling, both in the icy north and in the southern seas, is furnished by Mr. T. Southwell in the February issue of the *Zoologist* at the conclusion of an article on last season's catch of the Dundee whaling fleet. Although Hull and Bristol had for a long time previously been in the habit of sending vessels to Newfoundland and St. Lawrence Bay for seals and walrus, Greenland whaling was initiated from London and Hull in 1610 or 1611. The Dutch opened the route to Davis Strait in 1719, but were not allowed for long to enjoy the whaling by themselves. Scotland commenced Greenland whaling in 1750 from Leith; Dundee, the only British port from which whalers are now dispatched to the north, not joining in until 1790. Sperm-whaling in the South Seas, which appears to have been confined to the port of London, commenced in 1775 and continued until 1853, when it was abandoned to the Americans. During last season more whales were seen in Davis Strait than for some years past, the total catch being twenty-three.

WE have to acknowledge the receipt of four parts (Nos. 1434–7) of the Proceedings of the U.S. National Museum, in the first of which Mr. E. A. Klages describes a collection of moths belonging to a certain group from Venezuela. A fossil raccoon from a cave in California, described by Mr. J. W. Gidley, forms the subject of the second. We regret to see that in describing, in the third, certain macaque monkeys from the Malay countries, Mr. G. S. Miller seeks to replace the well known and universally accepted generic name Macacus by Macaca, on the ground that the latter is the earliest form of the name to be found in scientific literature. We stand sorely in need of a statute of limitation in regard to altering and replacing names. In the fourth Dr. L. Stejneger describes a new species of lizard belonging to the group of "horned toads" from Mexico. Whether, however, this species is entitled to be included under the latter title is almost doubtful, seeing that it lacks the horns from which the others take their name. It is also characterised by a peculiar downward expansion of the lower jaw.

FROM Dr. F. Ameghino, director of the Buenos Aires Museum, we have received copies of two papers from the *Anales* of that institution, one dealing with the remains of fossil penguins from the Tertiary deposits of Seymour Island, in the Antarctic, and the other with the Tertiary edentate mammals of France and Germany. Judging from their metatarsal bones, some of which indicate birds of very large size, the Seymour Island penguins are represented by a large number of species, these being referred by the author to no less than eight generic types, all of which are regarded as distinct. Of wider interest is the paper on the Oligocene and Miocene edentates of Europe, especially since the author's familiarity with American representatives of the group renders him peculiarly well qualified to test the determination of the European fossils. It is satisfactory to learn that Dr. Ameghino is fully convinced that among the latter are included armadillos, aard-varks, and pangolins, some of the armadillos coming very close to South American forms. This assemblage of three groups of edentates in the countries fringing northern Africa is suggestive that the latter continent may have been the original home of the group, which reached South America by direct land-connection.

THE Bausch and Lomb Optical Co., of Rochester, New York, the makers of the Minot microtomes, has recently issued a new catalogue of its instruments, in which reference is made to certain improvements in the Minot automatic rotary microtome.

UNDER the title "Glycogène et Paraglycogène chez les Végétaux," some notes written by the late Prof. L. Errera are published in the *Recueil de l'Institut botanique*, Brussels, vol. i., 1905. The notes refer to microchemical experiments on certain low organisms to test for the presence of these substances.

THE Trinidad Bulletin for January contains articles on cocoa diseases observed in Ceylon and the West Indies, and on the use of lime in agriculture. Two new instruments for rubber-tapping are mentioned, the one a revolving pricking instrument, the other an improved V-cutting knife. Reference is also made to the small fish, species of Girardinus, found in Trinidad and Barbados, that feed on the larvæ of mosquitoes; it is suggested that it would be useful to place them in pools in malarial districts.

THE first stage in the inquiry as to the possibility of establishing a beet-sugar industry in this country consists in making cultivation trials in the districts where the industry is likely to be located. Under the superintendence of Mr. G. Clarke, of the County Technical Laboratories, Chelmsford, sugar-beets were grown last year on experimental plots on five different farms. The reports from the growers giving cost and yield per acre are printed, together with the chemical analyses, in a pamphlet published by the Essex Education Committee. The cost of cultivation, manures, and of raising the beets averaged rather more than ten guineas per acre; on a large scale probably eighteen to twenty tons of roots could be grown for about

ten pounds per acre, and it is estimated that the farmer would receive from seventeen to twenty shillings per ton of trimmed roots delivered at the factory.

IN a paper read before the Royal Geographical Society on January 29 Prof. G. F. Scott Elliot gave an account of his observations on the various plants that aid in the formation of alluvial flats in the valleys of such rivers as the Aconcagua, in Chile, and the La Plata. The composite shrub, *Baccharis marginalis*, protected from drought by gum-containing leaves, was found to be one of the first settlers to fix the banks on the Aconcagua, after which other plants, including poplars and willows, could secure a hold, and gradually a river-side wood might be formed; or in the deeper backwaters plants of the nature of *Scirpus americanus* or *Juncus dombeyanus*, and in the shallows species of Eleocharis, spread out their horizontally creeping stems and upright stalks holding the mud and catching the drift until, in the marshy condition, grasses could grow over and fill up the swamp.

AN experimental station for the study of sugar-cane cultivation and of the diseases of the sugar-cane was opened at Samalkot by the Madras Government in 1902. Mr. C. A. Barber presents a report of the work for the year 1903–4 in Bulletin No. 51 of the Department of Land Records and Agriculture, Madras. Two local varieties, Bonta and Yerra, and an introduced cane, Red Mauritius, were selected for special experiment; the Bonta was eaten out by jackals, the Yerra did not suffer much and gave good results, but the Red Mauritius produced the greatest weight of cane and the largest amount of jaggery. The practice of wrapping the canes that is usual in the Godávari district will form the subject of experiment; the older leaves are twisted and wrapped round bamboos fixed in the ground; the object is two-fold, the leaves serving as a protection against jackals, and the bamboo supports preventing the canes being blown down in cyclonic storms.

A TORNADO of considerable violence occurred at Meridian, in the State of Mississippi, on the evening of March 2, involving much loss of life and causing great destruction of property. The tornado is said to have travelled at the rate of seventy-seven miles an hour, and to have passed away in two minutes. It apparently travelled from south-west to north-east, and in its progress it is reported to have ploughed a path 600 feet wide and one mile long.

A SEVERE hurricane occurred in the South Pacific on February 7 and 8, and was attended by very serious loss of life and property. According to the report received in this country from San Francisco, received there through the steamship *Mariposa*, damage to the value of 200,000*l.* was wrought in Tahiti, and it is believed that similar damage was caused in the Tuamotu Islands. The loss of life is rumoured as numbering several thousands. Papiete, situate on the north side of Tahiti, is said to have been inundated, and it would appear that the hurricane was accompanied by a series of high waves. The storm is reported to have struck the islands with a wind velocity of 120 miles an hour at midnight on February 7, and to have continued until four o'clock on the following afternoon. In this part of the world storms usually travel from the north-westward. According to the Admiralty sailing directions for the Pacific Islands, the hot months, December to March, are those in which storms may be expected, and clearly they are of fairly common occurrence in the Society Islands and in the Tuamotu Archipelago, but as a rule the hurricanes do not appear to be so severe as those of the Atlantic and Indian Oceans or of the China Seas. At present the information to hand with respect to the recent storm is very meagre, and further details will be anxiously looked for.

JAPAN has gained her supremacy in the East by a careful and minute study of the methods of the West. It is now the turn of the West to look towards the East for enlightenment, and we do not look in vain. Weather is an important item in commercial prosperity, and the study of it is therefore of the highest importance to every nation. If a country is subject to devastating cyclones, it is of the utmost necessity that inquiry should be set on foot to try to solve the causes of their frequency, and forecast, if possible, their advent, in order to mitigate so far as possible the damaging results which will eventually ensue. One old British possession, a valuable asset to the British Empire, is occasionally visited by these destructive air movements, and instead of concentrating a meteorological attack by erecting a first-class station, the British Government reduces the already microscopic annual grant of 100*l.* to 50*l.* In Japan science is respected, and respected probably because that country knows that scientific method is at the base of progress. In meteorological matters Japan does not mean to be left behind, and as the first duty of a German colonist seems to be to set up a barometer and thermometer and read them, so Japan follows suit by organising a meteorological service in Korea and Manchuria. An article upon this service, and the first-class observatory at Chemulpo, appeared in the *U.S. Monthly Weather Review* for September, 1905, and has already been noticed in these columns (February 15, p. 374).

A CONSPICUOUS and valuable feature of recent numbers of the Proceedings of the Tokyo Physico-mathematical Society is the number of short papers containing simple applications of deductive reasoning to physical phenomena. Thus we have an extension of Gibbs's phase rule to systems in which the potential differences between the phases enter into the equations, by Shizuwo Sano (ii., 25); a theory of the rainbow due to a circular source of light, by K. Aichi and T. Tanakadate (ii., 27); a discussion of the whistle produced by the vibration of a liquid drop, by T. Terada (ii., 26); and an explanation of the existence of secondary vibrations in seismic waves, by H. Nagaoka (ii., 28), based on the supposition that the acceleration due to the elastic force of the rock contains terms proportional to powers of the displacement higher than the first.

"A PROBLEM in Analytic Geometry with a Moral" is the somewhat attractive title of a paper by Prof. Maxime Bôcher in the *Annals of Mathematics*, vii., 1. The problem, which is quite elementary, consists in the determination of all the families of conics which cut a given conic, say $x^2-y^2=1$, at right angles. Taking the intersecting conic as given by the general equation of the second degree, the method of solution is to find the locus of the points the polars of which with respect to the two conics are at right angles, and to make this locus pass through the intersection of the two conics. At this stage the author advises the reader to complete the solution himself before reading further; if he does so, there is considerable probability that he will fail to obtain all the four solutions. The reason of this is that there is one family of orthogonal conics such that the polars of *any* point with respect to one of these conics and the original conic are at right angles, so that the coefficients in the equation of this locus vanish identically. The interesting point is that these conditions determine, not a single curve, but a family of curves with the same degree of generality as the families determined by the other conditions.

A NUMBER of papers on aërial navigation have appeared comparatively recently. Of Captain Ferber's work on stability of aëroplanes mention has been already made (p. 350), and it may be sufficient to add that in this particular connection, contrary to the old adage, "an ounce of theory is worth a pound of practice." But the same writer has since sent us a reprint of papers in the *Revue d'Artillerie* for August last, now published by Berger-Levrault, of Paris, under the title "Pas à Pas, Saut à Saut, Vol à Vol," which, to emulate the author's style, constitutes a comprehensive *vol au vent* of experimental gliding up to date, illustrated by many figures. Turning a little further back to the *Revue scientifique* (5, iii., 24, 25), we find an interesting discussion by M. Bazin of the source of energy in sailing flight of birds. The theory is essentially identical with that brought into prominence by Langley's work, in which variations in wind-velocity account for the phenomenon; but the author has also shown how models can be constructed in which this explanation is illustrated by the motion of a marble rolling on a movable kind of switchback. More recently, in the *Revue générale des Sciences* (xvi., 21), M. M. Léger details his attempts at obtaining the necessary lifting force in a machine of the "plus lourd" type by a combination of "helicopters" (vertical screws) and aëroplanes; his experiments have been carried out with the assistance of the Prince of Monaco. A little further back in the same series Lieut.-Colonel G. Espitallier discusses the materials and construction of balloons. Prof. S. P. Langley's work is described in a pamphlet, reprinted from the Smithsonian report by the Washington Government. A paper has also reached us from Madrid detailing the formation of a Royal Aéreo-Club of Spain. The current numbers of the *Aëronautical Journal* contain too much matter to be summarised here. Attention should, however, be directed to the flying model competition organised by the Aëronautical Society for July of this year.

A COPY of the twenty-sixth volume of the Proceedings of the Dorset Natural History and Antiquarian Field Club has been received. The volume has been edited by Mr. W. Miles Barnes. It contains the presidential address of Mr. Nelson M. Richardson, and, in addition to other contributions, papers by the Rev. O. Pickard-Cambridge, F.R.S., on new and rare British Arachnida; the Rev. E. F. Linton, on Dorset plants; Mr. H. Stillwell, on the returns of rainfall in Dorset; the Rev. H. S. Solly, on the landslip at Lyme Regis; Mr. W. B. Barrett, on the flora of the Chesil Bank and the Fleet; and the president, on first appearances in 1904 of birds, insects, and first flowering plants in Dorset.

OUR ASTRONOMICAL COLUMN.

DISCOVERY OF A NEW COMET, 1906*b*.—A telegram from the Kiel Centralstelle announces the discovery of a new comet by Herr Kopff at the Königstuhl Observatory on March 3.

At 14h. 52·8m. (Königstuhl M.T.) on the day of discovery the position of the comet was

R.A. = 11h. 35m. 56s., dec. = +1° 40′,

and the following values were determined for the daily movement:—in R.A. −7′ (−28s.), in dec. +4′.

A second telegram from Kiel announces that Dr. Valentiner, observing at the Königstuhl Observatory, Heidelberg, on March 4, recorded the position of this object as

R.A. = 11h. 35m. 35·8s., dec. +1° 40′ 37″

at 10h. 13·4m. (Königstuhl M.T.).

Thus it will be seen that the comet is in the southern part of the constellation Leo, and was about half-way between *ν* Leonis and *β* Virginis when discovered. It is travelling very slowly in a W.N.W. direction, and is on the meridian about midnight. No intimation of its magnitude has, as yet, been received.

THE RING NEBULA IN LYRA.—In 1902 Dr. Newkirk showed, in his inaugural dissertation for the doctor's degree at Munich, that the central star in the annular nebula in Lyra had a proper motion, and, from the value he obtained for this movement, he deduced the parallax of the nebula, finding it to be 0″·10.

As this was the first nebula for which any proper motion and parallax had been deduced, the verification of Dr. Newkirk's results became a matter of great importance, and therefore Prof. E. E. Barnard has made several measurements, photographic and visual, with the 40-inch refractor at Yerkes Observatory.

The results obtained do not verify those of Dr. Newkirk. According to the latter the total displacement of the nucleus during the five years which elapsed between Prof. Barnard's observations in 1898–9 and those of 1903–4 would have amounted to 0″·90, an easily measurable quantity, but no displacement at all could be detected.

As Dr. Newkirk's parallax for the central star depended upon his value for the proper motion, it must now, according to Prof. Barnard's results, be rejected as fallacious.

The latter observer concludes from his observations that everything in the immediate region of this nebula seems to have the usual fixity of the ordinary small stars (Monthly Notices R.A.S., vol. lxvi., No. 3).

A CLUSTER OF NEBULÆ IN PERSEUS.—In No. 4069 of the *Astronomische Nachrichten* Dr. Max Wolf describes his discovery of a number of small nebulæ in the regions about *β* and Nova Persei. These objects were seen, and their positions measured, on photographs obtained with the Bruce telescope, and they mostly lie in two bands, for which Prof. Wolf gives the positions.

The nebulæ are especially dense where these two bands coalesce, a region of 12′ (of arc) square containing 148 of them. Their forms are generally recorded as "round, with central condensation," and "form of Andromeda nebula."

TWENTY-FIVE NEW VARIABLE STARS.—Circular No. 107 of the Harvard College Observatory contains the positions and magnitudes of twenty-five variable stars recently discovered by Miss Leavitt from the examination of six plates taken with the 24-inch Bruce telescope.

The plates are of fine quality, and probably show altogether some 200,000 star images. The twenty-five variables contained in the list lie in the constellations Orion, Virgo, and Cygnus, and two of them in the last named constellation have magnitude ranges of 3·5 and 3·0 respectively.

THE GLOW SURROUNDING THE LUNAR CRATER LINNÉ.—Some interesting results of observations of Linné are published by Prof. E. E. Barnard in No. 4075 of the *Astronomische Nachrichten*.

The glow surrounding the crater was measured, on various dates between December, 1902, and November, 1904, with a micrometer attached to the 40-inch refractor at Yerkes, and Prof. Barnard concludes that its diameter does vary with the moon's age. The following table represents the curve, obtained from the observational results, for the varying diameters:—

Moon's age d. h.	Diam. of glow ″	Moon's age d. h.	Diam. of glow ″
7 0	6·6	14 0	3·4
8 0	6·0	15 0	3·3
9 0	5·4	16 0	3·3
10 0	4·8	17 0	3·4
11 0	4·3	18 0	3·5
12 0	4·0	19 0	3·8
13 0	3·7		

The diameters have been reduced to the moon's distance on January 12, 1903, viz. 221,820 miles. Whilst not certain of the exact form of the curve after full moon, Prof. Barnard thinks there is no doubt that it rises.

Two measures of the crater itself gave a mean of 0″·63 when reduced to the above distance. This corresponds to an actual diameter of about 3600 feet. Other interesting details of the crater and the glow are given in Prof. Barnard's notes.